industrial *electronics*

FARNELL

instruments ltd

INSTRUCTION MANUAL

for

MODEL T. S. V. 12/2.

MP MASTER
MA23392

WETHERBY INDUSTRIAL ESTATE, YORK ROAD, WETHERBY, YORKS.
Telephone : Wetherby 2691

F A R N E L L I N S T R U M E N T S L I M I T E D.

I N S T R U C T I O N M A N U A L F O R T R A N S I S T O R I S E D P O W E R S U P P L Y.

M O D E L T. S. V. 1 2 / 2 .

Designed and Manufactured by: Farnell Instruments Limited, York Road,
WETHERBY, Yorkshire.
Telephone: Wetherby 2691/2.

INTRODUCTION.

The unit is designed to provide a stabilised supply covering the range 0.5 volts to 12 volts D.C. A maximum current of 2 amps can be supplied (See derating curve). A meter is fitted in the front panel for output current and voltage measurements, ranges being selected by a double-pole switch.

Mains input voltages of 110 volts ± 5, 10, 20 volts and 220 volts ± 5, 10, 20 volts may be selected by a suitable arrangement of the plugs on the transformer tap plate situated in the rear panel. The D.C. output is isolated from the chassis, but either side may be earthed to chassis if required.

The Transistor Power Supply is supplied in a strong metal case of modern design.

OPERATION:

The mains voltage tapping for the transformer should be set to the appropriate value or the nearest lower tap on the transformer tap plate situated in the recess on the rear panel.

It will be noted that no output switch is provided as the full D.C. current may be drawn immediately on switch-on, due to the fully transistorised nature of the circuitry. For a time, up to approximately 60 seconds following switch on, the output voltage will rise (about 100 mV) owing to the necessity for Zener Diodes and transistors to reach equilibrium working temperature and capacitors to reach full charge.

Any desired voltage in the range 0.5 to 12 volts may be set by variation of the output control on the front panel. The circuit is protected against an accidental short circuit or a large overload by a 2 amp glass cartridge fuse (on the front panel) which breaks the D.C. supply to the regulating circuits.

The unit should not be operated at full load at a temperature greater than 50°C. (See derating curve) unless forced cold air ventilation is applied or output derated. Under all conditions of temperature, provision must be made around the cabinet for the free flow of cooling air to enable the required dissipation to take place from the transistor heat sink inside the cabinet. The cabinet has been styled so that cooling will be a maximum under normal conditions for bench work. Apart from radiation and convection losses from the heat sink, the chassis and case are made so that conduction takes place through the whole of

(Continued Over).

the unit and enables radiation and convection from all metal surfaces in the unit, ensuring stable operation with comparitively small size.

N.B. It is inadvisable to stack several of the units one upon each other if full load current is going to be drawn from all units owing to the large amount of heat which would have to be convected from the bottom one, therefore, overheating the upper ones.

The emitter followers are situated on the dissipation plate at the rear. If any fault should develop in the reference circuits it is advisable that the whole unit be returned to the Manufacturers for repair and inspection, although under normal conditions no faults can be envisaged for many years in the Silicon devices due to under-rating of all these components.

The limiting factors controlling the maximum output current which can be drawn from the unit are:-

(1) Collector dissipation of the emitter followers.
(2) Rectifier maximum current rating.
(3) Transformer rating.

(2) and (3) have high ratings well in excess of 2 amps, but (1) limits the output of the unit to 2 amps particularly at low voltage outputs, as the larger part of the D.C. input voltages has then to be dropped across the dynamic impedance of the emitter followers, and thus be dissipated as heat. The full 2 amps may be drawn between 6 and 12 volts providing that the temperature of the ambient air does not exceed 35°C. (See derating curve).

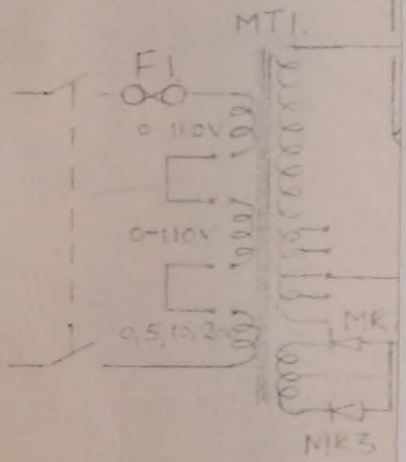
In the event of any failure taking place in the unit it is NOT advisable to leave under operating conditions as further damage may result due to overheating of various components such as power transistors.

S P E C I F I C A T I O N

T.S.V. 12/2.

Mains Input Voltage:	110v. ± 5, 10, 20: 220v ± 5,10, 20 A.C. 40-60 C.P.S.
D.C. Output:	0.5v - 12 v Continuously variable by one control.
Maximum Output Current:	2.0 amps.
Output Circuit Protection:	2.0 amp fuse situated between filter and control circuit.
Output Impedance:	Less than 0.04 ohms up to 1 Kc.
Output Variation with Mains Change:	± 10% mains change for one part in 1,000 when unit is fully loaded.
Ripple and Noise Content:	Less than 1 millivolt.
Transistor Line-up:	4-OC.16, 2-OC.72, 4-2ZA 150F ± 20%.
Dimensions:	14¼" x 9" x 7¼" high.
Weight:	13 lbs.

We reserve the right to alter the specification or construction where the Company considers this is necessary to enable the Company to pursue its programme of continuous development.


MT1.
F1
0 110V
0-110V
0,5,10,20
MK1
MK3

MP MASTER
MA23392